

## REMARKS

### SUMMARY

The Office action has withdrawn claims 12, 18, 27-29, 40, 47, 48, 52-58 and 74 from consideration. The restriction requirement leading to this withdrawal is again respectfully traversed.

By this amendment, claims 2, 43-51 and 70-78 have been canceled.

Claims 1, 3-11, 13-17, 19-26, 30-39, 41, 42 and 59-69 remain rejected.

Certain claims have been amended as discussed hereinbelow.

### RESTRICTION REQUIREMENT TRAVERSED

The restriction requirement is again respectfully traversed.

It appears from the Office action that the examiner agrees that all of the independent claims are directed to a single invention, as well as all dependent claims except those explicitly calling for three or more loads. Although applicants identified such dependent claims as belonging to a second Group, as a way of attempting to comply with the requirement set forth in the first Office action, it is respectfully submitted that the fact that certain *dependent* claims in an application do not read on all embodiments does not make those claims directed to an independent or distinct invention.

Applicants are aware of no authority for characterizing certain dependent claims as being directed to a different invention from their respective parent claims or from other independent claims when, as here, all of the independent claims have been deemed by the examiner to be directed to the same invention.

Also, applicants disagree with the finding in the Office action that claims 9, 34 and 52 are not generic. According to MPEP 806.04(d), a claim is generic if it includes two or more of the disclosed embodiments within the breadth and scope of definition. Applicants showed in their paper dated 10/18/2004 how those claims read on all of the disclosed embodiments. Moreover, the various embodiments disclosed in the application are not different "species" as that term is defined in the MPEP because they

are not independent. MPEP 804.06(b). Inventions are independent “where they are not connected in design, operation, or effect.” MPEP 808.01. Here, all of the embodiments *are* connected in design, operation and effect. They all implement the principles of the same invention as described, for example, in the specification. See, for example, paragraph [0018] of the Summary relating to the manner in which a substantial portion of the baseband current is isolated from the power supply, illustratively by being kept internal to the load.

In view of the foregoing, reconsideration of the restriction requirement is again respectfully requested.

#### REJECTION UNDER 35 U.S.C. 112

The rejection under the enablement provisions of 35 USC 112 is respectfully traversed.

The situation pointed out in the Office action, wherein both top FETs are on during the switching sequence, does not imply that the currents do not sum to zero, contrary to what the Office action states. Perhaps if the common mode inductor 41 were not in the circuit, *then* that situation might lead to switching frequency components where the sum of the currents is not zero, as postulated in the Office action. However, inductor 41 is specifically present to block those frequency components in the bridge voltage from entering the load, as would be appreciated by anyone experienced in the field, and especially in view of applicants’ disclosure. The inductor forces the currents in the loads to be equal and opposite, i.e. differential mode, by being sized to have a high impedance to common mode currents relative to the load impedance particularly at switching frequencies. Figure 5A and 5B show differential mode and common mode voltages at the bridge outputs. The differential mode voltage, Fig. 5A, is blocked by the common mode inductor.

The enclosed declaration under 37 C.F.R. 132 by one of the applicants, George G. Zipfel, Jr., explains further why specification is correct. The declaration notes that the Office action seems to be analyzing the circuit as though it had only non-reactive (e.g., purely resistive) elements. However, applicants’ disclosed circuits are reactive circuits, containing inductors, and thus cannot be analyzed as one would analyze a non-

reactive (i.e., purely resistive) circuit. The declaration goes on to point out how, in fact, in such a reactive circuit, the baseband signals  $i_{L1}(t)$  and  $i_{L2}(t)$  do, in fact, add to substantially zero.

#### REJECTION UNDER 35 U.S.C. 102-103

Claims 1, 3-11, 13-17, 19-26, 30-39, 41, 42 and 59-69 stand rejected under 35 USC 102 and/or 35 USC 103 as unpatentable in view of Tukomo.

The Office action points to capacitors 7 and 7' in Tukomo as corresponding to the loads recited in applicants' claims, stating that they are connected in Tukomo similarly to the way in which applicants' loads are connected in applicants' circuits. Applicants will accept for purposes of argument, and without admitting it to be the case, that capacitors 7 and 7' might be broadly characterized as "loads."

It is believed that the examiner appreciates that capacitors 7 and 7' in Tukomo are not loads in the sense of receiving the amplified baseband signal. Indeed, the values of those capacitors is such as to cause them to be filters that, in combination with chokes 11 and 12, eliminate the carrier signal. See, for example, col. 1, lines 43-53 of Tukomo which describe the function of capacitors 7 and 7' in the prior art circuits of FIGS. 3 and 4, and also col. 2, lines 51-54, indicating that those capacitors serve the same function in the circuit of FIG. 1. It is also believed that the examiner appreciates that the real load of the Tukomo circuit is speaker 9. See, for example, col. 1, lines 56-57, stating that load 9 is supplied with demodulated analog outputs by the PWM amplifiers.

#### Amendment of Independent Claims 1, 9, 34, 52 and 63

An important way in which applicants' loads differ from capacitors 7 and 7' is that applicants' loads receive substantially all of the baseband current whereas Tukomo's capacitors receive substantially *none* of the baseband currents. Each of the independent claims 1, 9, 34, 52 and 63 has been amended to point this out. For example, claim 1 now recites at lines 8-11 that substantially all of the at least one

baseband component of the two switching signals are currents that flow into the two reactive loads. The specific language of the claim is as follows:

substantially all of said at least one baseband component of said first switching signal being a current that flows into said first reactive load and substantially all of said at least one baseband component of said second switching signal being a current that flows into said second reactive load.

This is a limitation is not met by Tukomo's capacitors 7 and 7'. If, as claim 1 recites, all of the baseband currents in Tukomo were to flow into capacitors 7 and 7', no baseband current would flow into Tukomo's real load, namely speaker 9, which would be the exact opposite of the way Tukomo intends the circuit to operate.

Similar amendments have been made to independent claims 9, 34, 52 and 63.

#### Amendment of Independent Claim 59 and Dependent Claims 7, 19, 41, 57, 61 and 68

Independent claim 59 and dependent claims 7, 19, 41, 57, 61 and 68 have been amended to specifically limit at least one of the recited reactive loads to be a transducer. Capacitors 7 and 7' in Tukomo are obviously not transducers. Nor would it have been obvious to put transducers in the place of capacitors 7 and 7' since, as noted above, capacitors 7 and 7' function not as loads but, rather, provide a filtering function.

The Office action asserts that it would have been obvious for Tukomo's speaker 9 to be a sonar transmitting element. Applicants will accept this assertion solely for the purposes of argument. But the Office action has taken the position that it is capacitors 7 and 7' that correspond to the recited reactive loads of the claims, not Tukomo's speaker 9. Thus even if Tukomo's speaker could be a transducer, claims 59, 7, 19, 41, 57, 61 and 68 as amended distinguish the invention from Tukomo.

#### Amendment of Other Claims

As indicated in the claim set, some dependent claims have been amended to be consistent with amendments made to their parent claims.

Reconsideration of the restriction requirement and of the rejections under  
35 USC 102, 103 and 112 is requested.

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